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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,170	10/30/2001	Louis B. Rosenberg	IMM1P027B	1999

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EXAMINER
BRIER, JEFFERY A

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 07/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/004,170	ROSENBERG ET AL.	
	Examiner	Art Unit	
	Jeffery A. Brier	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45-67* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45-67* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Preliminary Amendment

1. The preliminary amendment is noted. Claims 45-67 are pending.

Drawings

2. The corrected or substitute drawings were received on 10/03/2001. These drawings are approved.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 45-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9, 30, or 38 of U.S. Patent No. 5,999,168. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claims are more detailed than the pending claims and because filter 120 of the patent would filter out some of the spurious

signals generated by the force feedback movement of the user manipulatable device.

of raw input signals. A comparison of claim 45 and claim 9/8/7/6/4/3/1 follows.

Pending claim 45	Patented claim 1 of U.S. Patent No. 5,999,168
45. (new) A method for reducing visual disturbances in a graphical environment caused by input data received from a force feedback device, said graphical environment implemented by a computer in communication with said force feedback device, said force feedback device including a user manipulatable object manipulatable by a user, the method comprising:	1. A control system for a force feedback interface device used in providing force sensations to a user interfacing with an application program and with visual images displayed by a display device in accordance with said application program and in accordance with manipulations of said force feedback interface device by said user, the control system comprising:
enabling an output of a force sensation from said force feedback device; and	a force feedback processor for determining output force commands for commanding forces to be applied on a user manipulatable object grasped by a user, said forces being applied by at least one actuator coupled to said force feedback processor and to said user manipulatable object, wherein said force feedback processor determines time-based forces, said time-based forces being output to said actuator; and a haptic accelerator coupled to at least one sensor of said force feedback interface device and separate from said force feedback processor, said haptic accelerator receiving raw sensor data from said at least one sensor and providing processed data from said raw sensor data, said haptic accelerator performing fast processing of said raw sensor data into said processed data, said processed data including position data representing a current position of said user object in at least one degree of freedom and velocity

Continuation of previous page	Continuation of previous page
	data representing a current velocity of said user object in at least one degree of freedom, said processed data being sent to said force feedback processor to be used in said determination of output forces on said user manipulatable object, and wherein said haptic accelerator includes a haptic processing unit for determining motion-based forces, said motion-based forces being output from said haptic processing unit to said actuator. 3. A control system as recited in claim 1 wherein said sensor is a digital optical encoder providing two raw sensor signals, and wherein said haptic accelerator determines a position of said user object and a direction of said user manipulatable object in said degree of freedom using said two raw sensor signals. 4. A control system as recited in claim 3 wherein said haptic accelerator includes a quadrature module for determining said position data using said two raw sensor signals, said position data describing a position of said user manipulatable object. 6. A control system as recited in claim 4 wherein said haptic accelerator includes a motion processing module having a counter for counting a time interval between raw signals from said digital optical encoder such that said haptic accelerator may provide an acceleration of said user manipulatable object. 7. A control system as recited in claim 6 wherein said haptic accelerator includes a plurality of latches for storing said time interval and a previous time interval such that said haptic accelerator may provide said acceleration of said user manipulatable object.

enabling a filtering of said input data according to a disturbance filter process to provide filtered input data, said input data being received from at least one sensor of said force feedback device during said output of said force sensation and being representative of movement of said user manipulatable object in at least one degree of freedom, wherein said filtering of said input data reduces said visual disturbance in said graphical environment caused by said output of said force sensation.	8. A control system as recited in claim 7 wherein said haptic accelerator includes fault prevention logic for detecting errors and invalid signals from said sensor. 9. A control system as recited in claim 8 wherein said haptic accelerator includes a filter for rejecting spurious raw sensor signals.

5. Claims 45-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 23-35 of U.S. Patent No. 6,310,605. Although the conflicting claims are not identical, they are not patentably distinct from each other because pending method claims 45-64 are broader than patented method claims 23-34 and pending apparatus claims 65-67 are broader than patented apparatus claim 35. The major difference is the patented claims claimed *wherein said filtered input data is substantially free of a disturbance on said movement of said user* while the pending claims claim *wherein said filtering of said input data reduces said visual disturbance in said graphical environment caused by said output of said force sensation*. Therefore the difference is in the patented claims the disturbance is substantially removed and in the pending claims the disturbance is reduced. Reduced is broader than substantially removed.

6. Claims 45-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 21-28 or 32 of U.S. Patent No. 6,020,876. Although the conflicting claims are not identical, they are not patentably distinct from each other because pending method claims 45-64 are broader than patented method claims 21-27 and pending apparatus claims 65-67 are broader than patented apparatus claims 28 or 32.

7. Claims 45-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26 or 28 of U.S. Patent No. 6,067,077. Filtering for overshoot values and the use of a low pass filter would reduce the disturbances in the input signal caused by the force feedback on the user manipulatable object. Although the conflicting claims are not identical, they are not patentably distinct from each other because the pending claims are broader than the patented claims.

8. From the above comparisons it is clear that the pending claims are broader versions of the patented claims. Broader versions of patented claims are an obvious way for applicant to claim the same thing patented. *In re Vogel*, 422 F.2d 438, 164 USPQ 619, 623 (CCPA 1970). Vogel stated on page 623 "*The answer to the second analysis question, therefore, is yes, and the claim is not allowable in the absence of a terminal disclaimer. The correctness of this conclusion is demonstrated by observing that claim 10, by reciting "meat," includes pork. It is further noted that viewing the inventions in reverse order, i.e. as though the broader claims issued first, does not reveal that the narrower (pork) process is in any way unobvious over the broader (meat)*

invention disclosed and claimed in the instant application.". Thus, this application's broader claims are not unobvious over the above identified patented claims.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 45-52 and 54-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salcudean et al., U.S. Patent No. 5,790,108, Fung et al., U.S. Patent No. 5,116,180, and Radke et al., U.S. Patent No. 5,223,776.

Applicants claimed invention is a filter that reduces visual disturbances in a graphical environment when the visual disturbances occur in response to activation of the force feedback actuators.

Salcudean teaches a force feedback device that controls a graphical environment. Salcudean is silent about filtering the output of the force feedback sensors in order to reduce any disturbances caused by the movement of the mouse in response to the force feedback. However, applicant is only claiming reducing the visual disturbances and any type of filter would reduce the visual disturbances since they will reduce the movement signals generated by the mouse.

Fung teaches a force feedback device that controls a robotic manipulator. Fung teaches filtering the output of the force feedback sensors (131) by noise filter (121),

H.C. gravity compensator algorithm (125) and position feedback compensator (126). The difference between Fung and applicant is Fung is indirectly filtering the feedback device position sensor (131) signals applied to mapping software (135) and manipulator control algorithm (101).

Radke teaches a force feedback device that controls a system. Radke teaches in figure 2 a filter (14) for filtering the force feedback position signals (line 20) prior to applying the signals to a controlled system (18).

For claims 45-51and 54-66:

In view of both Fung and Radke it would have been obvious to one of ordinary skill in the art at the time of applicants invention to filter the input data received from a force feedback device in order to reduce visual disturbances in a graphical environment caused by output of force sensation to the force feedback device because any type of filter would reduce the visual disturbance and because to solve the problem of visual disturbances in a graphical environment one of ordinary skill in the art would look to how the problem of visual disturbances in the real world were overcome.

Claim 51 claims:

> 51. (new) A method as recited in claim 45 wherein said disturbance filter process can be enabled or disabled, and wherein said filtering is performed if said associated disturbance filter process is enabled.

Fung teaches operating the force feedback device in four modes. See column 6 lines 5-9. Two modes have force feedback and two modes do not have force feedback. This teaching by Fung suggests enabling or disabling the filter in the above combination of

Salcudean, Fung and Radke for the sole reason that the user may desire to see the visual disturbances.

Allowable Subject Matter

11. Claim 53 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if a proper terminal disclaimer is provided.

Claim 53 claims:

> 53. (new) A method as recited in claim 45 wherein said disturbance filter process modifies said input data only when an associated force sensation is output by said force feedback device.

The prior art of record in this application and the prior art of record in parent applications 09/370,948 and 09/839,249 do not teach or suggest *wherein said disturbance filter process modifies said input data only when an associated force sensation is output by said force feedback device.*

12. Claim 67 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if a proper terminal disclaimer is provided.

Claim 67 claims:

> 67. (new) An apparatus as recited in claim 65 wherein a plurality of disturbance filter processes are stored in a memory, and wherein said force sensation is one of a plurality of different available force sensations that may be output by said force feedback device, wherein at least two of

said force sensations are associated with different ones of said disturbance filter processes.

The prior art of record in this application and the prior art of record in parent applications 09/370,948 and 09/839,249 do not teach or suggest *wherein a plurality of disturbance filter processes are stored in a memory, and wherein said force sensation is one of a plurality of different available force sensations that may be output by said force feedback device, wherein at least two of said force sensations are associated with different ones of said disturbance filter processes.*

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffery A. Brier whose telephone number is (703) 305-4723. The examiner can normally be reached on M-F from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi, can be reached at (703) 305-4713).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jeffery A Brier
Primary Examiner
Art Unit 2672